

ABSTRACT OF THE INVENTION

Method and apparatus for controlling magnitude and frequency of vibrotactile sensations
5 for haptic feedback devices. A haptic feedback device, such as a gamepad controller, mouse,
remote control, etc., includes a housing grasped by the user, an actuator coupled to the housing,
and a mass. In some embodiments, the mass can be oscillated by the actuator and a coupling
between the actuator and the mass or between the mass and the housing has a compliance that
can be varied. Varying the compliance allows vibrotactile sensations having different
10 magnitudes for a given drive signal to be output to the user grasping the housing. In other
embodiments, the actuator is a rotary actuator and the mass is an eccentric mass rotatable by the
actuator about an axis of rotation. The eccentric mass has an eccentricity that can be varied
relative to the axis of rotation while the mass is rotating. Varying the eccentricity allows
vibrotactile sensations having different magnitudes for a given drive signal to be output to the
15 user grasping the housing.